Cornelia (Karin) Verspoor

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EXPERIENCE

1/2003 - present   Los Alamos National Laboratory   Los Alamos, NM

Technical Staff Member, CCS-3

Member of the Knowledge Systems and Computational Biology team, led by Cliff Joslyn. Working closely with George Papcun on constructing a module for information extraction from Medline texts, for a CRADA with Procter & Gamble.

6/2001 - 12/2002   Applied Semantics   Los Angeles, CA

Senior Computational Linguist

Responsible for core technology development of an enterprise suite offering semantic meta-tagging, summarization, and categorization of documents. Focus on design and improvement of word sense disambiguation and "page sensing" algorithms through introduction of NLP techniques such as reference resolution and shallow parsing. Work on statistical techniques for semantic clustering, and automatic acquisition of concept-contexts and selectional restrictions. Programming in C++ and Perl. Extensive SQL scripting.

11/1998 - 5/2001   Webmind, Inc.   New York, NY

Director, Natural Language Engineering

Responsible for the design and implementation of the natural language module in the Webmind Artificial Intelligence system. Director of a team of 9 scientists and programmers, managing timetabling, hiring, task division and leading both conceptual-level and implementation-level design. The natural language processing done within this module includes techniques derived from information retrieval algorithms, statistical parsing, unification-based analysis, and information extraction, and makes use of resources like WordNet. We were working towards a system capable of deep semantic understanding of texts and intelligent, conversational, query answering by building on the general intelligence dynamics of the Webmind architecture (such as probabilistic reasoning, category formation, short-term memory modeling, etc.). Programming in Java.

Member of the Webmind, Inc. Software Process committee, established to evaluate the software process in place in the organization and to provide concrete proposals for improving productivity and efficiency. Gained familiarity with Unified Modeling Language (UML) and associated tools.

6/1998 - 11/1998   Webmind, Inc.   New York, NY

Senior Natural Language Engineer

Member of small team responsible for the design and implementation of the first version of the Webmind natural language module, in Java. Prototyped corpus-based statistical language learning algorithms. Designed and implemented the architecture for the natural language system.

9/1997 - 6/1998   Microsoft Research Institute   Sydney, Australia

Research Fellow

Research in multilingual natural language generation.

Project Co-ordinator, DDD (Dynamic Document Delivery) project. Member of a research team developing a system to generate multilingual textual descriptions of museum objects from an abstract database. Researched techniques for improving natural language generation quality. Responsible for developing multilingual resources of the system. Liased with the museum, set meeting agendas, coordinate task division in team. System implementation in Lisp; Perl used during data analysis and database cleaning.

Supervision of a vacation research intern. Supervision and hiring of a research assistant to build Spanish-language components for the NLG system.

| 5/1992 - 8/1992 | Space Industries International | Houston, TX |

Project Engineer

Wrote software in C++ for the Commercial Payload Operations Control Center (COMPOCC) to schedule resource use aboard the COMmercial Experiment Transporter (COMET), a capsule to test microgravity effects in low-earth orbit.

| 1/1992 - 7/1992 | Rice University, | Houston, TX |
| | Dept. of Computer Science | |

Student Research programmer

Designed and implemented a natural deduction proof verifier in Scheme, to be used as a teaching tool.

| 5/1990 - 1/1992 | RDA Consultants, Ltd. | Timonium, MD |

Software Engineer

Member of the COMPASS project analysis system team, designed for the World Bank Operations division. Designed and implemented a report generator in C++. Profiled and optimized code. (Worked during university holidays)

| 1/1989 - 8/1989 | Network Solutions, Inc. | Herndon, VA |

Intern/Software Engineer

January - June 1989: Intern. Worked as an assistant Telecommunications Analyst, researching networking and communications protocols. Participated in installation, testing, and troubleshooting of Open-Link TCP/IP software.

June - August 1989: Computer Programmer. Designed a library of vendor information using DBase-IV.

TEACHING

| 3/1998 - 6/1998 | Microsoft Research Institute | Sydney, Australia |

Co-teaching, Introduction to Language Technology

Co-teaching with Robert Dale. Taught modules on formal and lexical semantics, and on the use of statistical methods for parsing and word sense disambiguation.

| 10/1994 - 12/1996 | University of Edinburgh, | Edinburgh, UK |
| | Centre for Cognitive Science | |

Tutor/Demonstrator

October-December 1996, October-December 1995: Head tutor and demonstrator, Logic Programming and Computational Linguistics courses. Taught tutorials, organized and led team of demonstrators, helped students with Prolog programs, marked assignments.

January-March 1996: Head tutor, Computational Semantics course. Led tutorials, advised student project groups.

October-December 1994: Demonstrator, Logic Programming and Computational Linguistics courses. Helped students with programs.

| 10/1994 - 12/1995 | University of Edinburgh, | Edinburgh, UK |
| | Dept. of Artificial Intelligence | |

Tutor/Marker

Tutor and Marker, Introduction to Natural Language Processing course. Taught weekly tutorials, marked assignments.

| 8/1990 - 5/1993 | Rice University, | Houston, TX |
| | Dept. of Computer Science | |

Teaching Assistant

January - May 1993: Teaching Assistant, Artificial Intelligence course. Taught special topics, led tutorials, marked student work.

August - December 1990, January - May 1992: Teaching Assistant, Data Structures and C++ programming. Led tutorials, marked student work.

EDUCATION

| 8/1997 | University of Edinburgh, | Edinburgh, UK |
| | Centre for Cognitive Science | |

Doctorate

Thesis title: Contextually-Dependent Lexical Semantics

This thesis is an investigation of phenomena at the interface between syntax, semantics, and pragmatics. I examine sense extensions of verb meaning which result from the linguistic or discourse context. I concentrate on phenomena where only an interaction between all three linguistic knowledge sources can explain the constraints on verb use: conventionalized lexical semantic knowledge constrains productive syntactic processes, while discourse context is both constrained by and constrains the potential interpretations given to these verbs. Representation of lexical semantic and syntactic factors occurs within the framework of Head Driven Phrase Structure Grammar (Pollard and Sag 1994), while discourse coherence is governed by Discourse in Commonsense Entailment (Lascarides and Asher 1993).

| 4/1996-7/1996 | Brandeis University, | Waltham, MA |
| | Linguistics Dept. | |

Visiting Student

Work with Profs. Ray Jackendoff and James Pustejovsky in support of dissertation research.

| 1/1995-7/1995 | University of Utrecht, | Utrecht, |
| | Research Inst. for Language & Speech | the Netherlands |

Visiting Student

Work with Prof. Henk Verkuyl in support of dissertation research.

| 9/1994 | University of Edinburgh, | Edinburgh, UK |
| | Centre for Cognitive Science | |

Master's Degree

MSc, Cognitive Science and Natural Language. Awarded *with distinction*.

Thesis title: "A Cognitively Relevant Lexical Semantics". Concerned with capturing, in a computational implementation of Head-driven Phrase Structure Grammar (HPSG), syntactic regularities such as the dative alternation which have a basis in the lexical semantics of the participating verbs.

Coursework in theoretical and computational syntax/semantics; logic and logic programming; neural networks.

| 5/1993 | Rice University | Houston, TX |

Bachelor's Degree

BA in Computer Science and Cognitive Sciences. Graduated *Summa Cum Laude*.

Undergraduate thesis in Cognitive Science: "What are the characteristics of emotional metaphors?"

SKILLS

Programming Languages: C++, Java, Prolog, Lisp, Perl, UNIX scripting tools, basic SQL

Natural Languages: English native speaker, Dutch (fluent), French (advanced), Spanish (intermediate)

PUBLICATIONS

Verspoor, C., G. Papcun and K. Sentz (2003). "A Theoretical Motivation for Patterns in Information Extraction". Los Alamos Unclassified Report LAUR 03-1504.

Wan, S. and Verspoor, C. (1998), "Automatic English-Chinese name transliteration for development of multilingual resources." In Proceedings of COLING-ACL'98, Montreal, Canada.

Verspoor, C., Dale, R., Green, S., Milosavljevic, M., Paris, C., and Williams, S. (1998) "Intelligent Agents for Information Presentation: Dynamic Description of Knowledge Base Objects". In the proceedings of the International Workshop on Intelligent Agents on the Internet and Web, Mexico City, Mexico, 16-20 March 1998, pp. 75-86.

Dale, R., Green, S., Milosavljevic, M., Paris, C., Verspoor, C. and Williams, S. (1998). "Using Natural Language Generation Techniques to Produce Virtual Documents", Proceedings of the Third Australian Document Computing Symposium (ADCS'98).

Dale, R., Green, S., Milosavljevic, M., Paris, C., Verspoor, C. and Williams, S. (1998). "The Realities of Generating Natural Language from Databases". In Proceedings of the 11th Australian Joint Conference on Artificial Intelligence. 13-17 July 1998. Brisbane, Australia.

Verspoor, C.M. (1998) "The author explores the issue onto the agenda: Predictivity vs. Stipulativity in the Lexicon" In the proceedings of the Pacific Asia Conference on Language, Information, and Computation, February 18-20, 1998, Singapore, 152-162.

Verspoor, C.M. (1997) "Lexical Resources for Natural Language Processing Systems and the Problem of Polysemy". In the poster session proceedings of the Tenth Australian Joint Conference on Artificial Intelligence, December 2-4, Perth, Australia, pp 150-155.

Verspoor, C.M. (1997) "Conventionality-Governed Logical Metonymy" In the proceedings of the 2nd International Workshop on Computational Semantics, H. Bunt, L. Kievit, R. Muskens and M. Verlinden, eds., 300-312, Tilburg, the Netherlands.

Narasimhan, B., Di Tomaso, V. and Verspoor, C.M. (1996) "Unaccusative or Unergative? Verbs of Manner of Motion". Quaderni del laboratorio di linguistica, 10, Scuola Normale Superiore of Pisa.

Verspoor, C.M. (1996a) "A Perspective on PPs" Edinburgh Working Papers in Cognitive Science, Vol. 12: Studies in Head-Driven Phrase Structure Grammar, Claire Grover and Enric Vallduvi, eds., pp. 229-271.

Verspoor, C.M. (1996b) "Lexical Limits on the Influence of Context" In Proceedings of the Eighteen Annual Conference of the Cognitive Science Society, Garrison W. Cottrell, ed. Lawrence Erlbaum Associates Publishers, 116-120.

PRESENTATIONS

Verspoor, C.M. (2000) "A Distributed Architecture for Artificial Intelligence". Presented at the Association of Women in Science Central New Jersey Chapter meeting, June 2000.

Verspoor, C.M. (1999) "The art of being a successful technical manager". Presented at the Association for Women In Computing New York Chapter meeting, October 1999.

Verspoor, C.M. (1998) "A Lexical Semantic Account of Prepositional Phrase Modification". Presented at the 20th annual meeting of the DGfS (German Linguistics Society); Workshop on the Syntax of Adverbials.

Verspoor, C.M. (1998) "Phrasal constructs, the lexicon, and multilingual generation". Presented at the Hong Kong University of Science and Technology Computer Science department, 17 February 1998.
- Also presented at Logos Corporation (Mount Arlington, NJ), 10 March 1998 and the Columbia University Computer Science department, 11 March 1998.

PROGRAMME COMMITTEES / Reviewing

Twentieth Annual Conference of the Cognitive Science Society, 1998
Recent Advances in Natural Language Processing, 2001
Conference on Intelligent text processing and Computational Linguistics, 2001
Conference on Intelligent text processing and Computational Linguistics, 2002
Journal of User Modeling and User-Adapted Interaction (UMUAI), 2002
Fifth International Conference, Perspectives of Systems Informatics (PSI'03), 2003

PROFESSIONAL AFFILIATIONS

Association for Computational Linguistics
Linguistic Society of America
Association of Women in Science
American Association of University Women
Phi Beta Kappa
Tau Beta Pi

RESEARCH GRANTS

Macquarie University Research Grant, 1997 ($7000)
Engineering and Physical Sciences Research Council Research Studentship for PhD study, 1994-1997.
Doctor Catherine van Tussenbroek grant to fund PhD research visits to the University of Utrecht and Brandeis University, 1995-1996.